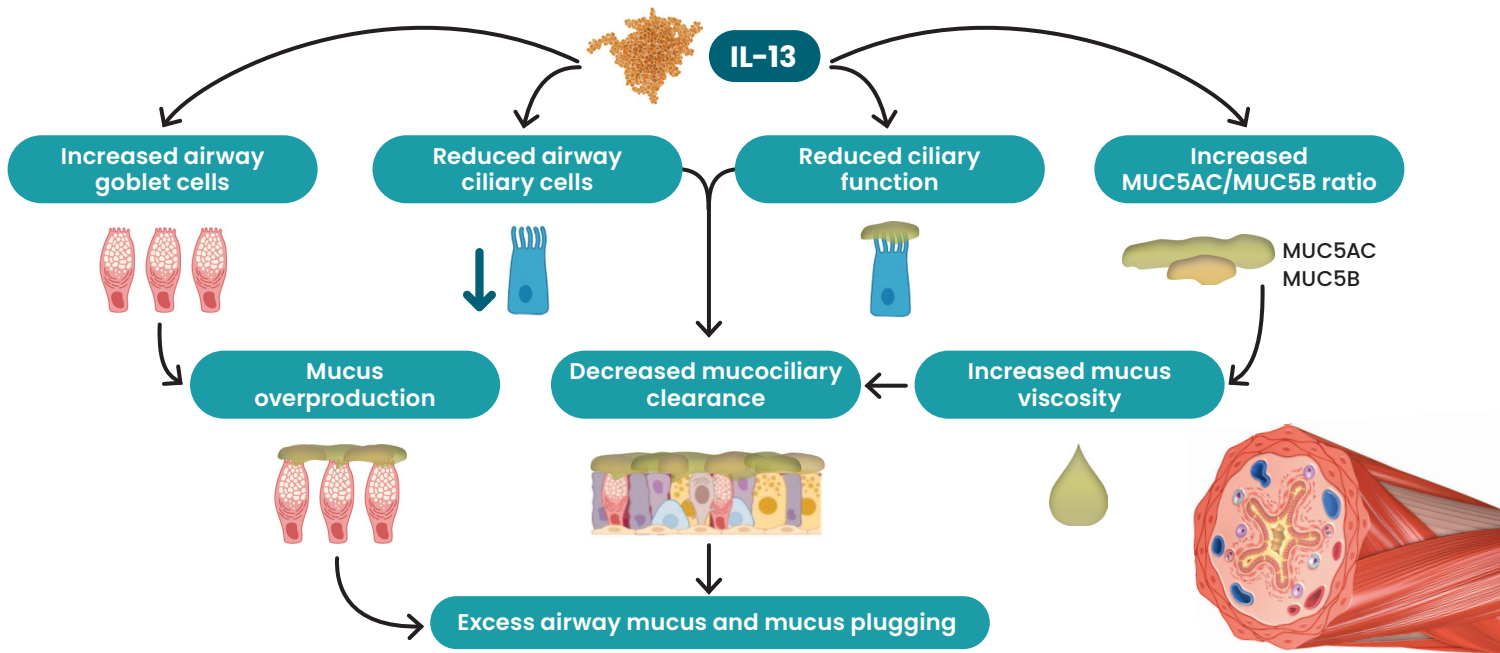


Mucus Plugging Is a Key Component of Remodeling in Asthma, Leading to Fixed Airway Obstruction

Mucus Overproduction and Decreased Mucociliary Clearance Can Lead to Mucus Plugs¹



Mucus Plugs Can Be Identified and Quantified Using CT Imaging of the Lungs²

CT Evaluation	Mucus Plugging	Mucus Score
<p>Define area of evaluation</p> <p>CT axial plane</p> <p>Exclude peripheral lung <2 cm from the costal or diaphragmatic pleura from midline anteriorly to the mediastinal interface posteriorly</p>	<p>Identify mucus plugging</p> <p>Plugged airway in cross-section</p> <p>Mucus plug defined as complete occlusion of airway by mucus Partial occlusion by mucus is not scored</p>	<p>Examine each bronchopulmonary segment for mucus plugs</p> <p>Bronchopulmonary segments</p> <p>Count the bronchopulmonary segments with ≥1 mucus plug(s) to generate the mucus score</p>

Illustrations based on ref. 2, fig. 2

Segments of each lobe are examined for mucus plugs and given a score of 1 (present) or 0 (absent). Segment scores of each lobe are summed to generate a total mucus score ranging from 0–20.

High mucus scores (≥4 bronchial subsegments with 1 or more airways completely occluded with mucus) were associated with low FEV₁ and air trapping in patients with chronic, severe asthma²

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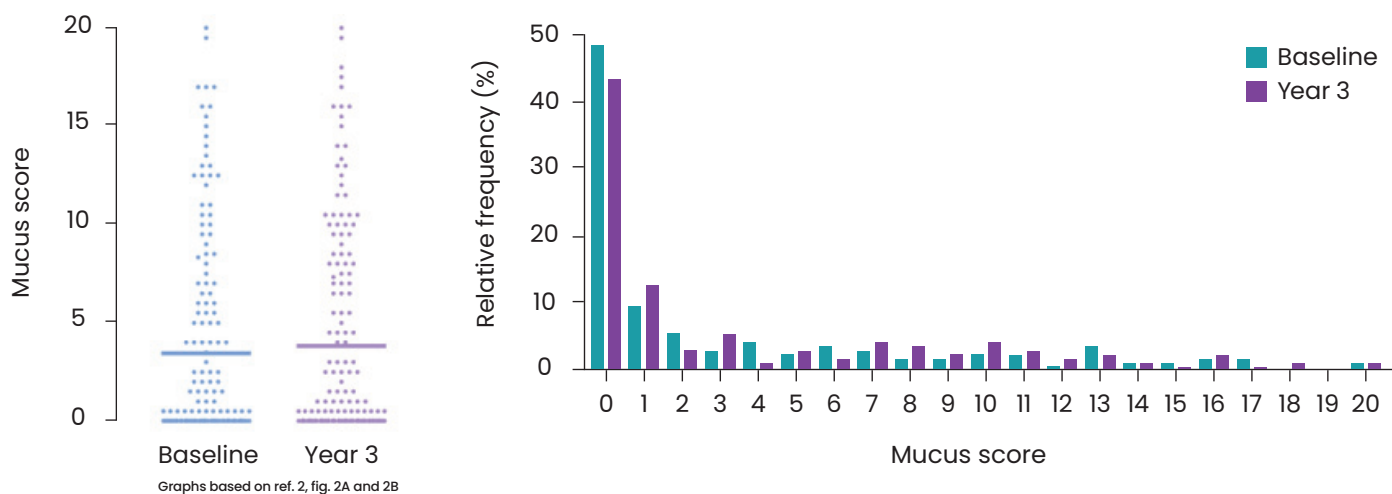
CT, computed tomography; FEV₁, forced expiratory volume in 1 second; IL, interleukin.

1. Jesenak M, et al. *Respir Med*. 2023;218:107372. 2. Dunican EM, et al. *J Clin Invest*. 2018;128(3):997-1009. 3. Tang M, et al. *Am J Respir Crit Care Med*. 2022;205(9):1036-1045.

4. Chan R, et al. *J Allergy Clin Immunol Pract*. 2023;11(1):195-199.e2.

Mucus Plugging Is a Key Component of Remodeling in Asthma, Leading to Fixed Airway Obstruction

The SARP-3 Study Showed Persistence of Mucus Plugs in Asthma Patients Over 3 Years³



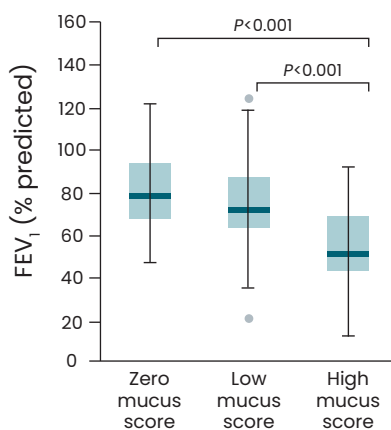
Low Global Mucus Score: 0.5–3.5

High Global Mucus Score: 4–20²

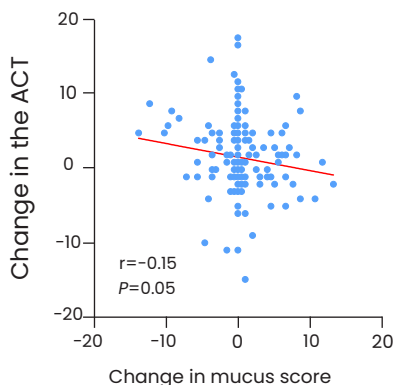
Persistent mucus plugs are associated with chronic OCS use and a greater symptom burden, measured by ACT³

Presence of Mucus Plugs Is Associated With Worsening Clinical Asthma Outcomes

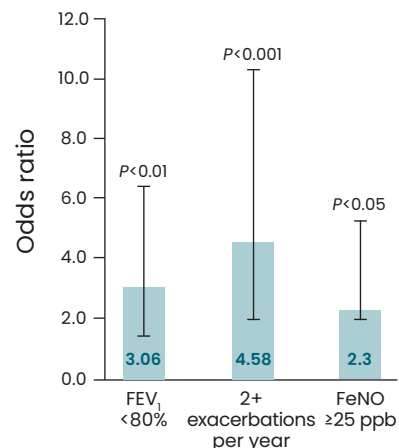
Lung Function^{2*} (n=146)



Asthma Control³ (n=164)



Odds of Poor Outcomes With Mucus Score $\geq 1^4$ (n=126)



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*Data from 146 of the 658 adult patients with asthma enrolled in SARP. Of those included in SARP (n=658), 66% of patients met American Thoracic Society/European Respiratory Society criteria for severe asthma. Patients were non-smokers and were required to have evidence of bronchial hyperresponsiveness or reversible airflow obstruction.

ACT, Asthma Control Test; FeNO, fractional exhaled nitric oxide; FEV₁, forced expiratory volume in 1 second; OCS, oral corticosteroid; SARP, Severe Asthma Research Program.

1. Jesenak M, et al. *Respir Med*. 2023;218:107372. 2. Dunican EM, et al. *J Clin Invest*. 2018;128(3):997-1009. 3. Tang M, et al. *Am J Respir Crit Care Med*. 2022;205(9):1036-1045.

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